

Amendments to the Drawings:

The attached sheet of drawings includes changes to Fig. 1. This sheet, which includes Fig. 1 replaces the original sheet including Fig. 1.

Attachment: Replacement Sheet
Annotated Sheet Showing Changes

REMARKS/ARGUMENTS

Claims 1-54 are pending. Claims 1-6, 8, 11, 12, 17-22, 24, 25, 29-34, 36, 37, and 40 have been amended. New claims 43-54 have been added. The specification and drawings have been amended to correct minor informalities. No new matter has been introduced. Applicants believe the claims comply with 35 U.S.C. § 112.

Applicants would like to thank the Examiner for the courteous interview extended to Applicants' counsel, Chun-Pok Leung, and Applicants' representative, Hiroshi Kawano, on October 21, 2005. During the interview, the differences between amended claim 1 and the cited art were discussed.

Applicants note with appreciation the indicated allowability of claims 4, 6, 11, 20, 22, 25, 32, 34, 37, and 38 if rewritten in independent form including the limitations of the base claim any intervening claims.

Claims 17-28 and 44

Claim 17 has been amended to include the limitations of original claim 25: "the third storage system transmits a command to the second storage system; and the second storage system transmits the data stored in the second storage area and the update information relating to the data to the third storage system in response to the command." Accordingly, claim 17, and claims 18-28 and 44 depending therefrom, are allowable.

Claims 29-39 and 45

Claim 29 has been amended to include the limitations of original claim 37: "the third storage system transmits a command to the second storage system; and the second storage system transmits the data stored in the third storage area and update information relating to the data to the third storage system in response to the command." Accordingly, claim 29, and claims 30-39 and 45 depending therefrom, are allowable.

Claims 47-54

Independent claim 47 is rewritten from original claim 4. Independent claim 48 is rewritten from original claim 6. Independent claim 49 is rewritten from original claim

11. Independent claim 50 is rewritten from original claim 20. Independent claim 51 is rewritten from original claim 22. Independent claim 52 is rewritten from original claim 32. Independent claim 53 is rewritten from original claim 34. Independent claim 54 is rewritten from original claim 38. Therefore, new claims 47-54 are allowable.

Claims 1-16 and 43

Claims 1, 9, 13, 15, and 16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tamatsu (US 2003/0074600 A1) in view of Ofek et al. (US 6,598,134). The Examiner cites Ofek et al. for allegedly disclosing updating the second storage system at given interval of time.

Claims 2 and 12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tamatsu in view of Ofek et al. and Duyanovich et al. (US 5,555,371). The Examiner cites Duyabovich et al. for allegedly disclosing updating the secondary storage on the basis of time interval according to the number of data.

Claims 3, 5, and 14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tamatsu in view of Ofek et al. and Yang (US 2004/0117344 A1). The Examiner cites Yang for allegedly disclosing updating the secondary storage on the basis of traffic of data.

Claims 7 and 8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tamatsu in view of Ofek et al. and Candelaria et al. (US 5,682,513). The Examiner cites Candelaria et al. for allegedly disclosing that the update information to be written to the second storage area relates to an update sequence of the data that is to be written to the first storage area.

Applicants respectfully submit that independent claim 1 as amended is patentable over the cited references because, for instance, they do not teach or suggest that the second storage area in the first storage system is configured by at least one of the disk drives in the first storage system, that the second storage system sends to the first storage system a command requiring the transmitting of the data stored in the second storage area and the update information relating to the data, and that the first storage system transmits the data

stored in the second storage area and the update information relating to the data to the second storage system in response to the command.

In the specific embodiment shown in Fig. 1, the journal logical volume (JNL1) is configured by at least one of the disk drives in the first storage system 100A. See paragraph [0044]. The second storage system 100B sends to the first storage system 100A a command requiring the transmitting of the data stored in the journal logical volume (JNL1) and the update information relating to the data. See paragraph [0045]. The first storage system 100A transmits the data stored in the second storage area JNL1 and the update information relating to the data to the second storage system 100B in response to the command. See paragraph [0046]. "A journal is composed of write data and update information." See paragraph [0041]. "Retaining a journal in a journal volume makes it possible not to update data of the secondary logical volume during journal reception, for example, when the load on the secondary storage system 100B is high, and to wait to update the data of the secondary logical volume until the load on the secondary storage system 100B is low." See paragraph [0040].

In Tamatsu, the primary system 1 does not include a second storage area configured by at least one of the disk drives for storing data and update information relating to the data. In addition, the secondary system 2 does not send to the primary system 1 a command requiring the transmitting of the data stored therein and the update information relating to the data. The secondary references (Ofek et al., Duyanovich et al., Yang, and Candelaria et al.) do not cure the deficiencies of Tamatsu.

For at least the foregoing reasons, claim 1, and claims 2-16 and 43 depending therefrom, are patentable over the cited references.

Claims 40-42 and 46

Claim 40 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Tamatsu in view of Ofek et al. Claims 41 and 42 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tamatsu in view of Ofek et al. and Yang.

Applicants respectfully submit that independent claim 40 as amended is patentable over the cited references because, for instance, they do not teach or suggest that

the second storage area in the storage system is configured by at least one of the disk drives in the storage system, that the remote storage system sends to the storage system a command requiring the transmitting of the journal stored in the second storage area, and that the storage system transmits the journal stored in the second storage area to the remote storage system in response to the command.

As discussed above, the primary system 1 in Tamatsu does not include a second storage area configured by at least one of the disk drives for storing a journal, and the secondary system 2 does not send to the primary system 1 a command requiring the transmitting of the journal stored therein. The secondary references (Ofek et al., Duyanovich et al., Yang, and Candelaria et al.) do not cure the deficiencies of Tamatsu.

For at least the foregoing reasons, claim 40, and claims 41, 42, and 46 depending therefrom, are patentable over the cited references.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,



Chun-Pok Leung
Reg. No. 41,405

TOWNSEND and TOWNSEND and CREW LLP
Two Embarcadero Center, Eighth Floor
San Francisco, California 94111-3834
Tel: 650-326-2400
Fax: 415-576-0300
Attachment
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FIG.1

